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Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 7

Complete if Known

Application Number 09/927,424
Filing Date August 9, 2001
First Named Inventor Shipwash, Edward
Art Unit 4645-1637
Examiner Name
Attorney Docket Number 021059-000110US

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U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
SEH	AA	US-6,165,335		12-26-2000	Lennox et al.	
	AB	US-6,100,541		8-8-2000	Nagle et al.	
	AC	US-5,354,654		10-11-1994	Ligler et al.	
	AD	US-5,225,374		7-6-1993	Fare et al.	
	AE	US-5,183,740		2-2-1993	Ligler et al.	
	AF	US-6,007,690		12-28-1999	Nelson et al.	
	AG	US-6,103,199		8-15-2000	Bjornson et al.	
	AH	US-6,020,209		02-01-2000	Narang et al.	
	AI	US-H1775		01-05-1999	Ligler et al.	
	AJ	US-5,111,221		05-05-1992	Fare et al.	
SEH	AK	US-5,643,722		07-01-1997	Rothschild et al.	
	AL	US-				
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FOREIGN PATENT DOCUMENTS

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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Signature		Date Considered	2/24/03
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Sheet 2 of 7

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Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.					T ²
SA	BC	Schimmel, P., "Aminoacyl tRNA Synthetases: General Scheme of Structure-Function Relationships in the Polypeptides and Recognition of Transfer RNAs", <i>Annu. Rev. Biochem.</i> , 56:125-158 (1987)					
	BD	Freist, W., "Mechanisms of Aminoacyl-tRNA Synthetases: A Critical Consideration of Recent Results", <i>Biochemistry</i> , 28:6787-6795 (1989)					
	BE	Schimmel, P., "Aminoacylation of RNA oligonucleotides: minimalist structures and origin of specificity", <i>FASEB J.</i> , 7:282-9 (1993)					
	BF	Cusack, S., "Aminoacyl-tRNA synthetases", <i>Curr. Opin. Struc. Biol.</i> , 7:881-9 (1997)					
	BG	Negrutskii et al., "Functional Interaction of Mammalian Valyl-tRNA Synthetase with Elongation Factor EF-1 α in the Complex with EF-1H", <i>JBC</i> , 274:4545-4550 (1999)					
	BH	Lloyd et al., "A broadly applicable continuous spectrophotometric assay for measuring aminoacyl-tRNA synthetase activity", <i>Nucl. Acids Res.</i> , 23:2886-2892 (1995)					
	BI	Reed et al., "Mechanisms of the Transfer of Aminoacyl-tRNA from Aminoacyl-tRNA Synthetase to the Elongation Factor 1 α ", <i>JBC</i> , 269:32932-36 (1994)					
	BJ	Lechler et al., "Overproduction of Phenylalanyl-tRNA Synthetase from <i>Thermus thermophilus</i> HB8 in <i>Escherichia coli</i> ", <i>Protein Expr. Purif.</i> , 8:347-57 (1996)					
	BK	Bausch et al., "Analysis and overexpression in <i>Escherichia coli</i> of a staphylococcal gene encoding seryl-tRNA synthetase", <i>Biochim. Biophys. Acta</i> , 1397:169-74 (1998)					
	BL	Martinis et al., "Aminoacyl-tRNA synthetases: A new image for a classical family", <i>Biochimie</i> , 81:683-700					
	BM	Schimmel et al., "Aminoacyl tRNA synthetases as targets for new anti-infectives", <i>FASEB J.</i> , 12:1599-609 (1998)					
	BN	DeGuzman et al., "Protein-RNA Recognition", <i>Biopolymers (Nucleic Acid Sciences)</i> , 48:181-95 (1998)					
	BO	Freist et al., "Glutamyl-tRNA Synthetase", <i>Biol. Chem.</i> , 378:1313-29 (1997)					
SA	BP	Freist et al., "Glycyl-tRNA Synthetase", <i>Biol. Chem.</i> , 377:343-56 (1996)					

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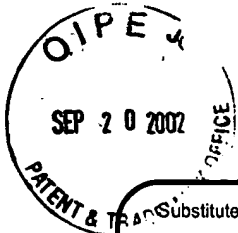
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Sheet 3 of 7

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Application Number	09/927,424
Filing Date	August 9, 2001
First Named Inventor	Shipwash, Edward
Art Unit	4645-1637
Examiner Name	
Attorney Docket Number	021059-000110US

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FBI CENTER 1600/2900**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. ¹	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	Number ⁴ Kind Code ⁵ (if known)				
SP	BQ		Cusak, S., "Eleven down and nine to go", <i>Nat. Struct. Biol.</i> , 2:824-31 (1995)				
	BR		Fukai, S., "Structural Basis for Double-Sieve Discrimination of L-Valine from L-Isoleucine and L-Threonine by the Complex of tRNA ^{Val} and Valyl-tRNA Synthetase", <i>Cell</i> , 103:793-803 (2000)				
	BS		Ibba et al., "Aminoacyl-tRNA Synthesis", <i>Ann Rev. Biochem. Sci.</i> , 69:617-50 (2000)				
	BT		Ibba et al., "The Adaptor hypothesis revisited", <i>Trends Biochem.</i> , 25:311-6				
	BU		Freist et al., "Histidyl-tRNA Synthetase", <i>Biol. Chem.</i> , 380:623-46 (1999)				
	BV		Cavarelli et al., "Recognition of tRNAs by aminoacyl-tRNA synthetases", <i>FASEB J.</i> , 7:79-86 (1993)				
	BW		Webb, M.R., "A continuous spectrophotometric assay for inorganic phosphate and for measuring phosphate release kinetics in biological systems", <i>Proc. Nat'l Acad. Sci. USA</i> , 89:4884-4887 (1992)				
	BX		Pellequer et al., "Measurement of kinetic binding constants of viral antibodies using a new biosensor technology", <i>J. Immunol. Meth.</i> , 166:133-143 (1993)				
	BY		Blank et al., "Overexpression and Purification of <i>Thermus thermophilus</i> Elongation Factors G, Tu, and Ts from <i>Escherichia coli</i> ", <i>Protein Expr. Purif.</i> , 6:637-45 (1995)				
	BZ		Moore et al., "Molecular Mimicry in Protein Synthesis?", <i>Science</i> , 270:1453-4 (1995)				
	CA		Bilgin et al., "Solution Structure of the Ternary Complex between Aminoacyl-tRNA, Elongation Factor Tu, and Guanosine Triphosphate", <i>Biochemistry</i> , 37:8163-72 (1998)				
	CB		Liljas, A.M., "Ribosomal proteins and elongation factors", <i>Curr. Opin. Struct. Biol.</i> , 5:721-7 (1995)				
	CC		Negrutskii et al., "Eukaryotic Translation Elongation Factor 1 α : Structure, Expression, Functions, and Possible Role in Aminoacyl-tRNA Channeling", <i>Prog. Nucleic Acid Res. Mol. Biol.</i> , 60:47-78 (1998)				
	CD		Krab et al., "EF-Tu, a GTPase odyssey", <i>Biochim Biophys Acta</i> , 1443:1-22 (1998)				
SA	CE		Clark, J., "The ternary complex of EF-Tu and its role in protein biosynthesis", <i>Curr. Opin. Struct. Biol.</i> , 7:110-6 (1997)				

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Sheet 4

of

7

Complete if Known

Application Number 09/927,424
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 Art Unit 4645-1637
 Examiner Name

Attorney Docket Number 021059-000110US

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		Country Code ³	Number ⁴ Kind Code ⁵ (if known)				
SH	CF		Schmitt et al., "Molecular recognition governing the initiation of translation in <i>Escherichia coli</i> . A review", <i>Biochimie</i> , 78:543-54 (1996)				1
	CG		Cai et al., "Interaction of Mitochondrial Elongation Factor Tu with Aminoacyl-tRNA and Elongation Factor Ts", <i>J. Biol. Chem.</i> , 275:20308-14 (2000)				1
	CH		Nissen et al., "The crystal structure of Cys-tRNA ^{Cys} -EF-Tu-GDPNP reveals general and specific features in the ternary complex and in tRNA", <i>Structure Fold Des.</i> , 7:143-56 (1999)				1
	CI		Liu et al., "F-actin Sequesters Elongation Factor 1 α from Interaction with Aminoacyl-tRNA in a pH-dependent Reaction", <i>J. Cell. Biol.</i> , 135:953-63 (1996)				1
	CJ		Reshetnikova et al., "Crystals of Intact Elongation Factor Tu from <i>Thermus thermophilus</i> Diffracting to High Resolution", <i>J. Mol. Biol.</i> , 221:375-7 (1991)				1
	CK		Wagner et al., "Interaction of Guanosine Nucleotides and Their Analogs with Elongation Factor Tu from <i>Thermus thermophilus</i> ", <i>Biochemistry</i> , 34:12535-12542 (1995)				1
	CL		Nissen et al., "Crystal Structure of the Ternary Complex of Phe-tRNA ^{Phe} , EF-Tu, and a GTP Analog", <i>Science</i> , 270:1464-1472 (1995)				1
	CM		Janiak et al., "Fluorescence Characterization of the Interaction of Various Transfer RNA Species with Elongation Factor Tu-GTP: Evidence for a New Functional Role for Elongation Factor Tu in Protein Biosynthesis", <i>Biochemistry</i> , 29:4268-4277 (1990)				1
	CN		Zubritsky, E., "Microplate Fluorometers Reach Critical Mass", <i>Anal. Chem.</i> , 71:39A-43A (1999)				1
	CO		Robeiro et al., "Purification of Aminoacyl-tRNA by Affinity Chromatography on Immobilized <i>Thermus thermophilus</i> EF-Tu-GTP", <i>Anal. Biochem.</i> , 228:330-335 (1995)				1
	CP		Nie et al., "Optical Detection of Single Molecules", <i>Ann. Rev. Biophys. Biomol. Struct.</i> , 26:567-596 (1997)				1
	CQ		Wu et al., "A Continuous Spectrophotometric Assay for the Aminoacylation of Transfer RNA by Alanyl-Transfer RNA Synthetase", <i>Anal. Biochem.</i> , 211:320-323 (1993)				1
	CR		Oliver, I.T., "A Spectrophotometric Method for the Determination of Creatine Phosphokinase and Myokinase", <i>Biochem. J.</i> , 61:116-122 (1955)				1
	CS		Light, A., "Leucine Aminopeptidase (LAP)", <i>Meth. Enzymol.</i> , 11:426-436 (1967)				1
SH	CT		Breddam et al., "Determination of C-Terminal Sequences by Digestion With Serine Carboxypeptidases: The Influence of Enzyme Specificity", <i>Carlsberg Res. Comm.</i> , 52:55-63 (1987)				1

Examiner Signature

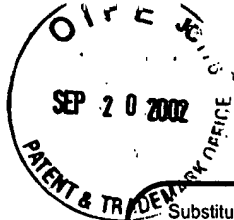
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Sheet 5 of 7

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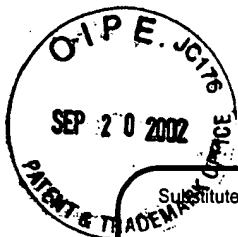
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		Country Code ³	Number ⁴ Kind Code ⁵ (if known)			
SA	CU		Royer, G., "Immobilized Derivatives of Leucine Aminopeptidase and Aminopeptidase M", <i>J. Biol. Chem.</i> , 248 :1807-1812 (1973)			1
	CV		Martin et al., "Use of Carboxypeptidase Y for Carboxy - Terminal Sequence Determination in Proteins", <i>Carlsberg Res. Comm.</i> , 42 :99-102 (1977)			1
	CW		Klarskov et al., "C-Terminal Sequence Determination of Peptides Degraded with Carboxypeptidases of Different Specificities and Analyzed by 252-Cf Plasma Desorption Mass Spectrometry", <i>Anal. Biochem.</i> , 180 :28-37 (1989)			1
	CX		Thiede et al., "MALDI-MS for C-terminal sequence determination of peptides and proteins degraded by carboxypeptidase Y and P", <i>FEBS Letts.</i> , 357 :65-9 (1995)			1
	CY		Bonetto et al., "C-Terminal Sequence Analysis of Peptides and Proteins Using Carboxypeptidases and Mass Spectrometry after Derivatization of Lys and Cys Residues", <i>Anal. Chem.</i> , 69 :1315-1319 (1997)			1
	CZ		Chinali, G., "Isolation of tRNA isoacceptors by affinity chromatography with immobilized elongation factor Tu from <i>Escherichia coli</i> ", <i>J. Biochem. Biophys. Meth.</i> , 34 :1-10 (1997)			1
	DA		Giovane et al., "Interaction studies between elongation factor Tu and anthraniloyl-fluorescent analogues of guanyl nucleotides", <i>Eur. J. Biochem.</i> , 227 :428-432 (1995)			1
	DB		Eccleston et al., "Interaction of a Fluorescent Analogue of GDP with Elongation Factor Tu: Steady-State and Time-Resolved Fluorescence Studies", <i>Biochemistry</i> , 26 :3902-3907 (1987)			1
	DC		Iwane et al., "Single molecular assay of individual ATP turnover by a myosin-GFP fusion protein expressed in vitro", <i>FEBS Letts.</i> , 407 :235 (1997)			1
	DD		Patterson, D.M., "C-Terminal Ladder Sequencing via Matrix-Assisted Laser Desorption Mass Spectrometry Coupled with Carboxypeptidase Y Time-Dependent and Concentration-Dependent Digestions", <i>Anal. Chem.</i> , 67 :3971-3978 (1995)			1
	DE		Johnson et al., "Distance Moved by Transfer RNA During Translocation from the A Site to the P Site on the Ribosome", <i>J. Mol. Biol.</i> , 158 :113-140 (1982)			1
	DF		Watson et al., "Macromolecular Arrangement in the Aminoacyl-tRNA-Elongation Factor Tu-GTP Ternary Complex. A Fluorescence Energy Transfer Study", <i>Biochemistry</i> , 34 :7904-7912 (1995)			1
	DG		Dreher et al., "Quantitative Assessment of EF1α-GTP Binding to Aminoacyl-tRNAs, Aminoacyl-viral RNA, and tRNA Shows Close Correspondence to the RNA Binding Properties of EF-Tu", <i>JBC</i> , 274 :666-72 (1999)			1
	DH		Nyrén et al., "Inorganic Pyrophosphatase-Based Detection Systems", <i>Analytical Biochemistry</i> , 220 :46-52 (1994)			1
SA	DI		Ekins, "Ligand assays: from electrophoresis to miniaturized microarrays", <i>Clinical Chemistry</i> , 44 :2015-2030 (1998)			1

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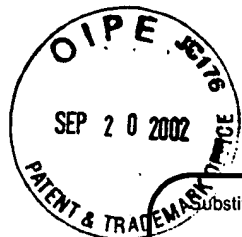
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SA	DJ		Huang et al., "Determination of L-phenylalanine based on an NADH-detecting biosensor," <i>Anal. Chem.</i> , 70:991-7 (1998)				
	DK		Lee et al., "Application of a flow injection fibre optic biosensor for the analysis of different amino acids", <i>Biosens Bioelectron</i> , 9:29-32 (1994)				
	DL		Campanella et al., "Analysis of L-dopa in pharmaceutical preparations and of total phenols content in urine by means of an enzyme-amperometric sensor", <i>J Pharm Biomed Anal</i> , 11:1099-104 (1993)				
	DM		Thoma et al., "Automated phenylthiocarbamyl amino acid analysis of carboxypeptidase/aminopeptidase digests and acid hydrolysates", <i>Journal of Chromatography</i> , 537:153-165 (1991)				
	DN		Watson et al., "Macromolecular Arrangement in the Aminoacyl-tRNA•Elongation Factor Tu•GTP Ternary Complex. A Fluorescence Energy Transfer Study", <i>Biochemistry</i> , 34:7904-7912 (1995)				
	DO		Nyrén et al., "Inorganic Pyrophosphatase-Based Detection Systems", <i>Analytical Biochemistry</i> , 220:39-45 (1994)				
	DP		Nyrén et al., "Enzymatic Method for Continuous Monitoring of Inorganic Pyrophosphate Synthesis", <i>Analytical Biochemistry</i> , 151:504-509 (1985)				
	DQ		Forrest et al., "Aminoalkyl Adenylate and Aminoacyl Sulfamate Intermediate Analogues Differing Greatly in Affinity for their Cognate <i>Staphylococcus aureus</i> Aminoacyl tRNA Synthetases", <i>Bioorganic & Medicinal Chemistry Letters</i> , 10:1871-1874 (2000)				
	DR		Negrutskii et al., "Functional Interaction of Mammalian Valyl-tRNA Synthetase with Elongation Factor EF-1 α in the Complex with EF-1H", <i>The Journal of Biological Chemistry</i> , 274:4545-4550 (1999)				
	DS		Wu et al., "A Continuous Spectrophotometric Assay for the Aminoacylation of Transfer RNA by Alanyl-Transfer RNA Synthetase", <i>Analytical Biochemistry</i> , 211:320-323 (1993)				
	DT		Ribeiro et al., "Purification of Aminoacyl-tRNA by Affinity Chromatography on Immobilized <i>Thermus thermophilus</i> EF-Tu•GTP", <i>Analysis Biochemistry</i> , 228:330-335 (1995)				
	DU		Bilgin et al., "Solution Structure of the Ternary Complex between Aminoacyl-tRNA, Elongation Factor Tu, and Guanosine Triphosphate", <i>Biochemistry</i> , 37:8163-8172 (1998)				
	DV		Ohlson et al., "Use of monoclonal antibodies for weak affinity chromatography", <i>Journal of Chromatography A</i> , 758:199-208 (1997)				
	DW		Dunn et al., "Quantitative Affinity Chromatography. Determination of Binding Constants by Elution with Competitive Inhibitors", <i>Proc. Nat. Acad. Sci. USA</i> , 71:2382-2385 (1974)				
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Sheet 7 of 7

Complete if Known

Application Number	09/927,424
Filing Date	August 9, 2001
First Named Inventor	Shipwash, Edward
Art Unit	1645 1637
Examiner Name	
Attorney Docket Number	021059-000110US

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FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴ Kind Code ⁵ (if known)			
S&H	DY		Rabbany et al., "Assessment of Heterogeneity in Antibody-Antigen Displacement Reactions", <i>Anal. Chem.</i> , 69 :175-182 (1997)			
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